

2010 Conference on Infectious Disease Modeling Sponsored by the U.S. Department of Defense

COL Brian H. Feighner, MC USA (Ret.)*; Amy Kircher, DrPH†; Victoria J. Davey, RN, MPH, PhD‡; MAJ Ronald L. Burke, VC USA§; COL Joel C. Gaydos, MC USA (Ret.)§

Advances in infectious disease modeling may offer opportunities to mitigate the effect of emerging infectious diseases upon military readiness.¹⁻³ Concerned that opportunities for collaboration might be missed and unintended redundancy might be occurring, the U.S. Defense Department (DoD) Global Emerging Infections Surveillance and Response System (GEIS) sponsored conferences in August 2005 and May 2008 for infectious disease modelers engaged in DoD projects or on models useful to the DoD.^{4,5} Several recommendations were made at these conferences, to include the identification of organizations with "...demonstrated expertise in model development and operation for collaboration with the DoD and civilian organizations that are developing simulation models or conducting exercises."⁴ Despite these recommendations, infectious disease modeling efforts in support of the DoD have remained somewhat disjointed.

In January 2010, GEIS, now a division of the Armed Forces Health Surveillance Center (AFHSC), sponsored a third meeting on infectious disease modeling in support of DoD readiness and response activities. Over 70 participants from more than 30 federal and non-federal agencies and institutions met for 2 days at the 2010 Infectious Disease Modeling Meeting on the campus of the Johns Hopkins University Applied Laboratory, Laurel, MD (Appendix). The first day and a half consisted of presentations detailing past and current work by the participating organizations. The afternoon of the second day featured a roundtable discussion on how to optimize DoD-relevant infectious disease modeling efforts, generally, and specifically how to maximize opportunities for collaboration and coordination while minimizing unintended redundancy.

The roundtable discussion first turned to the issue of whether the focus should remain centered on infectious disease modeling within the DoD alone or expand to modeling of interest to the entire U.S. federal government (USG). Several partici-

pants pointed to the blurred lines of responsibility for epidemiological modeling among federal agencies and the group agreed to expand the discussion to modeling of interest to the USG. The group then returned to an issue identified in the two previous meetings of how best to identify all those who have received federal funding for infectious disease modeling projects. As a first step, participants agreed to: (1) identify all federal funding they received in the past 10 years for infectious disease and other related modeling efforts and to compile data on all articles, reports, and other products produced from the funding of specific agencies, and (2) create a distribution list of meeting participants and identify other colleagues known to be working in the field. Conference organizers agreed to investigate methods for organizing the above information into a searchable repository available to all participants.

Conference participants noted that the emergence of the 2009 H1N1 influenza pandemic since the last meeting had demonstrated that much remains to be accomplished to promote coordinated infectious disease modeling throughout the USG. Representatives from several federal agencies reported the sudden appearance of a plethora of influenza models as the pandemic emerged, many with widely different results and recommendations. The group vigorously agreed on the need for a collaborative infectious disease modeling hub within the USG. Ideally, this hub would serve not only as a repository for models but also as a liaison between modelers and policy makers. The example of the Interagency Modeling and Atmospheric Advisory Center (IMAAC, <https://imaacweb.llnl.gov/web/signIn.html>) was repeatedly cited as a conceptually similar activity. Participants suggested varied seats for the proposed modeling hub; some felt it best situated within an existing agency or professional society; others felt a new organization was required for its creation. In either case, the group recognized that additional, sustained funding would be required for success of the modeling hub. Several participants agreed to champion the concept both within their respective agencies and in further meetings with relevant USG entities. In closing, participants noted that this was the third meeting with a similar agenda in the past 5 years. Although the meetings were deemed excellent, the group felt that it was time to capitalize on the current increased interest in infectious disease modeling to move from discussion to action.

*The Johns Hopkins University Applied Physics Laboratory, 11100 Johns Hopkins Road, Laurel, MD 20723.

†NORAD – US Northern Command, Office of the Command Surgeon, 250 Vandenberg, Suite B016, Peterson AFB, CO 80914.

‡Office of Public Health and Environmental Hazards, Veterans Health Administration, Department of Veterans Affairs, 810 Vermont Avenue NW, Washington, DC 20420.

§U.S. Department of Defense, Armed Forces Health Surveillance Center, 503 Robert Grant Avenue, Silver Spring, MD 20910.

The opinions expressed are the private views of the authors and are not to be construed as official or as reflecting official positions of the Departments of the Army, Navy, or Air Force, or the Department of Defense, or other organizations with representatives at the meeting.

ACKNOWLEDGMENTS

We thank the conference participants for their thoughtful presentations and discussions. We thank Ms. Sheri Lewis for programmatic support and Ms. Sue Pagan and Ms. Raquel Robinson for their invaluable administrative planning

Report Documentation Page				Form Approved OMB No. 0704-0188	
Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.					
1. REPORT DATE 2010		2. REPORT TYPE		3. DATES COVERED 00-00-2010 to 00-00-2010	
4. TITLE AND SUBTITLE 2010 Conference on Infectious Disease Modeling Sponsored by the U.S. Department of Defense				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) The Johns Hopkins University, Applied Physics Laboratory, 11100 Johns Hopkins Road, Laurel, MD, 20723				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT Same as Report (SAR)	18. NUMBER OF PAGES 3	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			

and support. Funding for this project was provided by the U.S. Department of Defense.

APPENDIX

Affiliations of conference participants at the Infectious Disease Modeling Meeting held January 6 and 7, 2010 at the Johns Hopkins University Applied Physics Laboratory:

- Analytic Services, Inc. (ANSER), Arlington, VA
- Henry M. Jackson Foundation, Bethesda, MD
- Johns Hopkins University Applied Physics Laboratory, Laurel, MD
- Mathecollogy, LLC., Phoenix, AZ
- Quantum Leap Innovations, Inc., Arlington, VA
- Research Triangle Institute International (RTI), Research Triangle Park, NC
- Sandia National Laboratories, Albuquerque, NM
- Science Applications International Corporation (SAIC), McLean, VA
- The Tauri Group, Alexandria, VA
- U.S. Department of Agriculture, Animal and Plant Inspection Service, Riverdale, MD
- U.S. Department of Defense, Armed Forces Health Surveillance Center, Silver Spring, MD
- U.S. Department of Defense, Armed Forces Health Surveillance Center, Division, Global Emerging Infections Surveillance and Response System, Silver Spring, MD
- U.S. Department of Defense, Defense Threat Reduction Agency, Alexandria, VA
- U.S. Department of Defense, Joint Program Executive Office for Chemical and Biological Defense, Falls Church, VA
- U.S. Department of Defense, Joint Program Executive Office for Chemical and Biological Defense, Chemical and Biological Medical Systems, Frederick, MD
- U.S. Department of Defense, Joint Program Executive Office for Chemical and Biological Defense, Information Systems, San Diego, CA
- U.S. Department of Defense, NORAD–U.S. Northern Command, Peterson AFB, CO
- U.S. Department of Defense, Uniformed Services University of the Health Sciences, Bethesda, MD
- U.S. Department of Defense, Uniformed Services University of the Health Sciences, Center for Disaster and Humanitarian Assistance Medicine (CDHAM), Bethesda, MD
- U.S. Department of Defense, U.S. Army Medical Research and Materiel Command, Fort Detrick, MD
- U.S. Department of Defense, U.S. Naval Academy, Annapolis, MD
- U.S. Department of Defense, U.S. Naval Medical Research Center, Bethesda, MD

U.S. Department of Defense, Walter Reed Army Institute of Research (WRAIR), Silver Spring, MD

U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, Bacterial Diseases Branch, Fort Collins, CO

U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, Division of Vector-Borne Infectious Disease, Fort Collins, CO

U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, Preparedness Modeling Unit, Atlanta, GA

U.S. Department of Health and Human Services, Food and Drug Administration, Rockville, MD

U.S. Department of Health and Human Services, National Institutes of Health, Fogarty International Center, Bethesda, MD

U.S. Department of Health and Human Services, National Institutes of Health, Models of Infectious Disease Agent Study (MIDAS), Bethesda, MD

U.S. Department of Health and Human Services, Office of the Assistant Secretary for Preparedness and Response, Washington, DC

U.S. Department of Health and Human Services, Office of the Assistant Secretary for Preparedness and Response, Biomedical Advanced Research and Development Authority, Washington, DC

U.S. Department of Veterans Affairs, Veterans Health Administration, Office of Public Health and Environmental Hazards, Washington, DC

Virginia Bioinformatics Institute, Virginia Polytechnic Institute and State University, Blacksburg, VA

REFERENCES

1. Ferguson NM, Cummings DAT, Cauchemez S, et al: Strategies for containing an emerging influenza pandemic in Southeast Asia. *Nature* 2005; 437(8): 209–14.
2. Longini IM Jr, Nizam A, Xu S, et al: Containing pandemic influenza at the source. *Science* 2005; 310(5751): 117–8.
3. McCaw JM, McVernon J: Prophylaxis or treatment? Optimal use of an antiviral stockpile during an influenza pandemic. *Math Biosci* 2007; 209: 336–60.
4. Chretien JP, Linthicum KL, Pavlin JA, Gaydos JC, Malone JL: Epidemiologic applications of emerging infectious disease modeling to support US military readiness and national security [conference summary], *Emerg Infect Dis* [serial on the Internet] 2006. Available at <http://www.cdc.gov/ncidod/EID/vol12no01/05-1214.htm>; accessed January 11, 2010.
5. Feighner BH, Eubank S, Glass RJ, Davey VJ, Chretien JP, Gaydos JC: Infectious disease modeling and military readiness [conference summary], *Emerg Inf Dis* [serial on the Internet], 2009. Available at <http://www.cdc.gov/EID/content/15/9/e1.htm>; accessed January 11, 2010.

Copyright of Military Medicine is the property of Association of Military Surgeons of the United States and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.